

Attorney Docket No. ADN2653P1US
Serial No. 09/778,192

REMARKS

The Office Action of April 12, 2005 has been carefully reviewed and this response addresses the concerns set forth therein. Claims 1-9, 13 and 14 are pending in the present application. Claims 10-12 are withdrawn.

In the office action, claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate amendments which address the concerns set forth in the rejection have herein been made to the pending claims.

Claims 1-3, 7-9 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rouzier (U.S. Patent # 3,595,846) in view of Spott (DE 32 33 557). This rejection is respectfully traversed.

Rouzier discloses an apparatus for carrying out continuous chemical reactions in a closed loop reactor in which spherical separators are placed and function to divide the tube into individual "cells" (e.g. the space between two such separators) that each contain a measured quantity of reaction material and may be acted on individually, thereby functioning as individual closed or semi-closed type reactors.

Referring to Fig. 1 of Rouzier, it is asserted in the office action that the line (41), circulation pump (42), and intervening station (40) form a loop reactor in combination with the right portion of the tubular chamber (21) located between line (41) and intervening station (40). The left portion of the tubular chamber (21), located between line (41) and intervening station (42), is asserted to be a "by-pass tube" to by-pass the sphere (26) around the circulation pump (42). Applicants respectfully disagree with this analysis.

According to Rouzier, the tubular chamber (21) (e.g., referred to as the tubular reactor throughout the Rouzier specification) connects the point of origin (22) and the terminal point (23). The tubular chamber (21) contains reaction medium which is divided

into doses (26) (e.g. cells) by the spherical separators (26). The tubular reactor (21) is surrounded by double covers (27) which allow for temperature regulation of the reaction medium contained in the reactor (21) as temperature is one of the conditions having an effect on the outcome of the reaction product. A certain number of "intervening stations" are provided along the tubular chamber (21). These intervening stations allow the reaction medium in each individual cell to be acted upon by means of programmed operations, such as injection of products (solvents, reagents, catalysts, etc), drawing off or recycling products, modification of the operating conditions (especially the temperature), taking of samples, and measurement of parameters (see col. 2, lines 30-39). For example, the "first intervening station" (32) introduces the catalyst to the monomer fluid in the tubular chamber (21) and at the "second intervening station" (32) mixing occurs. With regard to the "third intervening station" (40), it is stated that part of the reaction medium drawn off through line (41) by means of the pump (42) is recycled (i.e. recycled back through the right portion of the tubular chamber (21) located between line (41) and intervening station (40). Thus, the circulation pump (42) does not recirculate the polymer emulsion along *the entire length* of the reaction tube.

It is clear from Rouzier that the line (41), circulation pump, (42) and intervening station (40) are not part of Rouzier's "reaction tube". Instead, this pathway is one optional "intervening station" that may be utilized with the tubular reactor of Rouzier (21) when one would like to obtain a wider range of ages of macromolecules produced (see col. 3, lines 18-22). Only a portion of the reaction medium is drawn through this pathway. The remaining reaction medium and reaction product continue past the line (41). And, as can be seen in Fig. 1, there are no monomer feeds, fluid feeds, or double covers (27) for temperature control present on the line (41), all of which one skilled in the art would recognize as indicating that this pathway is not part of the reaction tube, since such a reaction tube would require such feeds and temperature control.

Further if, as asserted in the office action, the left side of the tube (21) is a "bypass" tube as presently claimed, then there should not be any monomer feeds or fluid feeds present nor should any of the reaction medium be present. This is not the case with the left side of tube (21) of Rouzier. This is because the entire tube (21) of Rouzier is the reaction tube.

It is well-known that the prior art must be looked at for what it would fairly teach one skilled in the art. However, the office action arbitrarily splits what is clearly the complete reaction tube (21) shown in Fig. 1 into a "by-pass tube" and a part of a "reaction tube", the remainder of such "reaction tube" being considered to be an optional pathway for recirculating some of the reaction medium in order to arrive at the presently claimed apparatus. It is clear that the teachings of the specification and drawing of Rouzier, as a whole, do not teach, suggest or disclose to one skilled in the art the presently claimed invention.

Spott is cited as evidencing that polymerization with a water phase feed is well known in the art and thus, one skilled in the art would be motivated to include a water phase feed into the apparatus of Rouzier if it was suitable for the type of monomer feed being used. However, even if this is true, there is no teaching or suggestion in Spott which overcomes the deficiencies of Rouzier set forth above.

Claims 4-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Rouzier in view of Spott, and further in view of Wennerberg (U.S. Patent # 3,425,083). This rejection is also respectfully traversed. As discussed above, Rouzier does not teach or suggest a closed loop emulsion polymerization apparatus with a line by-passing a recirculation pump. Spott also does not teach, suggest or disclose such a structure. Wennerberg is cited as teaching a closed loop tube having an aperture in the shape of a slot for allowing a portion of the liquid within the tube to escape such that one skilled in the art would be motivated to add such a slot to the apparatus of Rouzier. Even if, in *arguendo*, this is true, there is no teaching, suggestion or disclosure in Wennerberg which would motivate one to use such a slot at the delivery side of the circulation pump. Accordingly, even assuming in *arguendo* their combination, neither Spott nor Wennerberg cure the deficiencies in Rouzier.

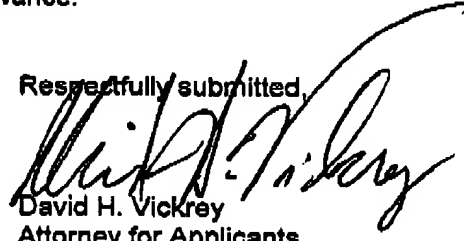
Claim 14 stands rejected under 35 U.S.C. 103(a) over Rouzier in view of Spott and Allen (U.S. Patent # 3,220,432). This rejection is also respectfully traversed. Rouzier and Spott are both discussed above. Allen is cited as teaching a pig receiving station having a means for removing or inserting a pig. It is asserted that one skilled in the art would find it obvious to substitute a pig receiving station having a means for inserting or removing a pig in the apparatus of Rouzier as such a pig receiving station

Attorney Docket No. ADN2653P1US
Serial No. 09/778,192

would allow the separator to be replaced or repaired. However Allen fails to overcome the deficiencies in Rouzier and Spott noted above. Withdrawal of the rejection is respectfully requested.

Thus, for the reasons set forth above, the present invention is non-obvious over the cited references and the Applicant respectfully requests that the Examiner find the present application in condition for immediate allowance.

Respectfully submitted,



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